

1. You can answer any 12 questions from a total of 14 questions on an exam. In how many different ways can you select the questions?
2. Powerball is played with 55 white balls, numbered 1 through 55, and 42 red balls, numbered 1 through 42. Five white balls and one red ball, the Powerball are drawn. In how many ways can a player select the six numbers?
3. Three points that are not collinear determine three lines. How many lines are determined by nine points, no three of which are collinear?
4. A shipment of 25 television sets contains three defective units. In how many ways can a vending company purchase four of these units and receive (a) all good units, (b) two good units, and (c) at least two good units?
5. You are dealt five cards from an ordinary deck of 52 playing cards. In how many ways can you get a full house? (A full house consists of three of one kind and two of another. For example 8-8-8-5-5 and K-K-K-10-10 are full houses.)
6. Five cards are chosen from a standard deck of 52 cards. How many five-card combinations contains two jacks and three aces?
7. A clothing manufacturer interviews 12 people for four openings in the human resources department of the company. Five of the 12 people are women. If all 12 are qualified, in how many ways can the employer fill the four positions if (a) the selection is random and (b) exactly two women are selected?
8. A law office interviews paralegals for 10 openings. There are 13 paralegals with two years of experience and 20 paralegals with one year of experience. How many combinations of seven paralegals with two years of experience and three paralegals with one year of experience are possible?
9. A six-member research committee is to be formed having one administrator, three faculty members, and two students. There are seven administrators, 12 faculty members and 20 students in contention for the committee. How many six-member committees are possible?